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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,068	01/26/2006	Alan Martin Birch	101160-1P US	8460
44992 7590 04/28/2009 ASTRAZENECA R&D BOSTON 35 GATEHOUSE DRIVE WALTHAM, MA 02451-1215				
EXAMINER YOUNG, SHAWQUITA				
ART UNIT		PAPER NUMBER		
1626				
MAIL DATE		DELIVERY MODE		
04/28/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/566,068

**Applicant(s)**

BIRCH ET AL.

**Examiner**

SHAWQUIA YOUNG

**Art Unit**

1626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 3-10 and 16-22 is/are pending in the application.
- 4a) Of the above claim(s) 16 and 20-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-10, 17 and 18 is/are rejected.
- 7) ☒ Claim(s) 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/808)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Claims 1, 3-10 and 16-22 are currently pending in the instant application. Claims 1, 3-10, 17 and 18 are being rejected, claim 19 is being objected and claims 16 and 20-22 are withdrawn from consideration in this Office Action.

#### **I. *Response to Arguments/Remarks***

Applicants, amendment filed on January 12, 2009, has overcome the rejection of claim 19 under 35 USC 112, second paragraph as being incomplete for omitting essential structural cooperative relationships of elements. The above rejection has been withdrawn.

Applicant's arguments with respect to the rejection of claims 1, 3-10, 17 and 18 under 35 USC 103 as being unpatentable over Strobel, et al. (US 2003/0055093) have been fully considered but are not persuasive. Applicants argue that the indanyl amide portion of the molecule bears a specific substituent namely an optionally substituted indole-2-yl group. Applicants further argue that although indole is included within the definition of Hetar groups allowed in the variables recited for the group at the corresponding position in the molecule R<sup>5</sup> in the compound of Strobel, that the average skilled man would have no reason to select B as CH-(C<sub>1-3</sub>alkyl) and R<sup>5</sup> as indole in combination based on the disclosure. Applicants also argue that although Strobel provides examples of compound in which indolyl, these are very few in number compared to the well over four hundred compounds in total exemplified Strobel.

However, the Examiner wants to point out that the options for variable B is not a long laundry list of possibilities. The definition of variable B is very limited and thus it would be obvious for one of ordinary skill in the art to make a similar compound to an example in Strobel, et al. such as 5-bromo-1H-indole-2-carboxylic acid indan-2ylamide (See ex 241, page 30) wherein B is CH-(C<sub>1-3</sub> alkyl) with a reasonable expectation of success. The motivation for one of ordinary skill in the art to prepare a similar compound but to modify the variable would be it has been well established that substituting a hydrogen with a methyl is considered obvious because these two functional groups are considered obvious variants. The Examiner wants to also point out that the number of compounds that contain an indole group that have been disclosed in the Strobel, et al. reference in relation to the other types of compounds is irrelevant. The prior art specifically teaches examples of compounds wherein R<sup>5</sup> is indole which means that these types of compounds were developed and studied. The prior art is not limited to the examples or preferred embodiments and therefore it would be obvious for one of ordinary skill in the art to modify, for example, 5-bromo-1H-indole-2-carboxylic acid indan-2ylamide wherein B is CH-(C<sub>1-3</sub> alkyl) and expect the compound to possess activity. Applicants have failed to persuasively argue that the instant compounds wherein Y is alkyl are not obvious over the prior art reference, Strobel, et al. Thus the Examiner has maintained the obviousness rejection of claims 1, 3-10, 17 and 18 as being unpatentable over *Strobel, et al.*

## II. **Rejection(s)**

### 35 USC § 103 - OBVIOUSNESS REJECTION

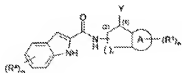
The following is a quotation of 35 U.S.C. § 103(a) that forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

*Graham v. John Deere Co.* set forth the factual inquiries necessary to determine obviousness under 35 U.S.C. § 103(a). See *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Specifically, the analysis must employ the following factual inquiries:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 3-10, 17 and 18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Strobel, et al.* (US 2003/0055093). Applicants claim a compound of

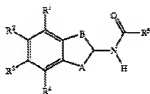


formula

wherein all variables are as defined in claim 1.

**The Scope and Content of the Prior Art (MPEP §2141.01)**

*Strobel, et al.* teaches acylated indanyl amines that are useful in the upregulation of endothelial nitric oxide synthase (eNOS). The invention is represented by the general formula:



[0012] In the above formula,

[0013]  $R^3$  and  $R^4$  are independently from each other selected from the group consisting of:

[0014] H; unsubstituted and at least monosubstituted  $C_1$ - $C_{10}$ -alkyl,  $C_3$ - $C_{10}$ -alkenyl and  $C_3$ - $C_{10}$ -alkynyl, the substituents of which are selected from the group consisting of F, OH,  $C_1$ - $C_3$ -alkoxy,  $(C_1$ - $C_6$ -alkyl)mercapto, CN, COOR<sup>6</sup>, CONR<sup>6</sup>, and unsubstituted and at least monosubstituted phenyl and heteroaryl, the substituents of which are selected from the group consisting of halogens, pseudohalogens,  $C_1$ - $C_3$ -alkyl,  $C_1$ - $C_3$ -alkoxy and CF<sub>3</sub>; unsubstituted and at least monosubstituted phenyl and heteroaryl, the substituents of which are selected from the group consisting of halogens, pseudohalogens,  $C_1$ - $C_3$ -alkyl,  $C_1$ - $C_3$ -alkoxy and CF<sub>3</sub>; R<sup>2</sup>CO; CONR<sup>7</sup>R<sup>11</sup>; COOR<sup>12</sup>; CF<sub>3</sub>; halogens; pseudohalogens; NR<sup>13</sup>R<sup>14</sup>OR<sup>15</sup>; S(O)<sub>n</sub>R<sup>16</sup>; SO<sub>2</sub>NR<sup>17</sup>R<sup>18</sup>; and NO<sub>2</sub>;

[0015]  $R^2$  and  $R^3$  are independently from each other selected from the group consisting of:

[0016] H; halogens; pseudohalogens; unsubstituted and at least monosubstituted  $C_1$ - $C_{10}$ -alkyl the substituents of which are selected from the group consisting of OH, phenyl, and heteroaryl; OH;  $C_1$ - $C_{10}$ -alkoxy; phenoxyl; S(O)<sub>n</sub>R<sup>19</sup>; CF<sub>3</sub>; CN; NO<sub>2</sub>;  $(C_1$ - $C_{10}$ -alkyl)amino; di( $C_1$ - $C_{10}$ -alkyl)amino ( $C_1$ - $C_6$ -alkyl)-CONH—, unsubstituted and at least monosubstituted phenyl-CONH— and phenyl-SO<sub>2</sub>—O—, the substituents of which are selected from the group consisting of halogens, pseudohalogens, CH<sub>3</sub> and methoxy;  $(C_1$ - $C_6$ -alkyl)SO<sub>2</sub>—O—, unsubstituted and at least monosubstituted  $(C_1$ - $C_6$ -alkyl)CO, the substituents of which are selected from the group consisting of F, di( $C_1$ - $C_3$ -alkyl)amino, pyrrolidinyl and piperidinyl; and phenyl-CO, the phenyl part of which can be substituted by one or more substituents from the group consisting of  $C_1$ - $C_3$ -alkyl, halogens and methoxy;

[0017] A is selected from the group consisting of CH<sub>3</sub>, CHOH and CH—( $C_1$ - $C_3$ -alkyl);

[0018] B is selected from the group consisting of CH<sub>2</sub> and CH—( $C_1$ - $C_3$ -alkyl);

[0019]  $R^5$  is a group Ar or a group Heter both of which can be unsubstituted or carry one or more substituents selected from the group consisting of: halogens; pseudohalogens; NH<sub>2</sub>; unsubstituted and at least monosubstituted  $C_1$ - $C_{10}$ -alkyl,  $C_2$ - $C_{10}$ -alkenyl,  $C_2$ - $C_{10}$ -alkynyl,  $C_1$ - $C_{10}$ -alkoxy ( $C_1$ - $C_{10}$ -alkyl) amino, di( $C_1$ - $C_{10}$ -alkyl)amino, the substituents of which are selected from the group consisting of F, OH,  $C_1$ - $C_3$ -alkoxy, aryloxy,  $(C_1$ - $C_6$ -alkyl)mercapto, NH<sub>2</sub>,  $(C_1$ - $C_6$ -alkyl)amino, and di( $C_1$ - $C_6$ -alkyl) amino;  $C_3$ - $C_6$ -alkandyl; phenyl; heteroaryl; aryl- or heteroaryl-substituted  $C_1$ - $C_6$ -alkyl; CF<sub>3</sub>; NO<sub>2</sub>; OH; phenoxyl; benzoyloxy;  $(C_1$ - $C_6$ -alkyl)COO; S(O)<sub>n</sub>R<sup>20</sup>; SH; phenylamino; benzylamino;  $(C_1$ - $C_{10}$ -alkyl)-CONH—;  $(C_1$ - $C_6$ -alkyl)-CON( $C_1$ - $C_6$ -alkyl)—; phenyl-CONH—; phenyl-CON( $C_1$ - $C_6$ -alkyl)—; heteroaryl-CONH—; heteroaryl-CON( $C_1$ -

$C_6$ -alkyl)—;  $(C_1$ - $C_{10}$ -alkyl)-CO; phenyl-CO; heteroaryl-CO; CF<sub>3</sub>-CO; —OCH<sub>2</sub>O—; —OCF<sub>3</sub>O—; —OCH<sub>2</sub>CH<sub>2</sub>O—; —CH<sub>2</sub>CH<sub>2</sub>O—; COOR<sup>21</sup>; CONR<sup>22</sup>R<sup>23</sup>; CNH(NH<sub>2</sub>); SO<sub>2</sub>NR<sup>24</sup>R<sup>25</sup>; R<sup>26</sup>SO<sub>2</sub>NH—; R<sup>27</sup>SO<sub>2</sub>N( $C_1$ - $C_6$ -alkyl); and saturated or at least monounsaturated aliphatic, monocyclic 5- to 7-membered heterocycles containing 1 to 3 heteroatoms selected from the group consisting of N, O and S, which heterocycles can be substituted by one or more substituents selected from the group consisting of halogens,  $C_1$ - $C_3$ -alkyl,  $C_1$ - $C_3$ -alkoxy, OH, oxo and CF<sub>3</sub>, where said heterocycles can optionally be condensed to the said group Ar or the said group Heter, wherein all aryl, heteroaryl, phenyl, aryl-containing, heteroaryl-containing and phenyl-containing groups, which are optionally present in the said substituents of the said group Ar or the said group Heter, can be substituted by one or more substituents selected from the group consisting of halogens, pseudohalogens,  $C_1$ - $C_3$ -alkyl, OH,  $C_1$ - $C_3$ -alkoxy, and CF<sub>3</sub>;

[0020]  $R^6$  is selected from the group consisting of:

[0021] H;  $C_1$ - $C_{10}$ -alkyl, which can be substituted by one or more substituents selected from the group consisting of F,  $C_1$ - $C_6$ -alkoxy, and di( $C_1$ - $C_6$ -alkyl)amino; aryl- $(C_1$ - $C_6$ -alkyl) and heteroaryl- $(C_1$ - $C_6$ -alkyl), which can be substituted by one or more substituents selected from the group consisting of halogens,  $C_1$ - $C_6$ -alkoxy, and di( $C_1$ - $C_6$ -alkyl)amino;

[0022]  $R^7$  is selected from the group consisting of:

[0023] H;  $C_1$ - $C_{10}$ -alkyl which can be substituted by one or more substituents selected from the group consisting of F,  $C_1$ - $C_6$ -alkoxy, di( $C_1$ - $C_6$ -alkyl)amino and phenyl; phenyl; indanyl; and heteroaryl; and wherein each of the aforementioned aromatic groups can be unsubstituted or carry one or more substituents from the group consisting of halogens, pseudohalogens,  $C_1$ - $C_3$ -alkyl,  $C_1$ - $C_3$ -alkoxy and CF<sub>3</sub>;

[0024]  $R^8$  is H or  $C_1$ - $C_{10}$ -alkyl;

[0025]  $R^9$  is selected from the group consisting of:  $C_1$ - $C_{10}$ -alkyl which can be unsubstituted or carry one or more substituents from the group consisting of F,  $(C_1$ - $C_6$ -alkoxy), di( $C_1$ - $C_6$ -alkyl)amino; and unsubstituted and at least monosubstituted phenyl and heteroaryl, the substituents of which are selected from the group consisting of  $C_1$ - $C_3$ -alkyl,  $C_1$ - $C_3$ -alkoxy, halogens, pseudohalogens, and CF<sub>3</sub>;

[0026]  $R^{20}$  independently has the same meaning as  $R^7$ ;

[0027]  $R^{21}$  independently has the same meaning as  $R^6$ ;

[0028]  $R^{22}$  independently has the same meaning as  $R^6$ ;

[0029]  $R^{23}$  is selected from the group consisting of: H;  $C_1$ - $C_3$ -alkyl; unsubstituted and substituted phenyl, benzyl, heteroaryl,  $(C_1$ - $C_6$ -alkyl)-CO, phenyl-

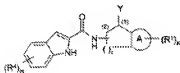
See also preferred embodiments at pages 5-7, which disclose species teaching specific moieties. Note page 6, paragraph 0072 wherein B is preferably selected from the group consisting of  $\text{CH}_2$  and  $\text{CH-CH}_3$ .

**The Difference Between the Prior Art and the Claims (MPEP §2141.02)**

The difference between the prior art of *Strobel, et al.* and the instant invention is that there is homologous subject matter. Not all of the substituents are taught, however there is overlap between the substituents disclosed especially in view of the preferred embodiments taught by the prior art. See *In re Lemin* 141 USPQ 814- choosing some among many.

**Prima Facie Obviousness-The Rational and Motivation (MPEP §2142-2413)**

Applicants are claiming a compound of the formula



wherein specifically r is 1 and Y can represent an optionally substituted (1-4C)alkyl. The prior art reference of *Strobel, et al.* teaches a similar compound wherein the variable of B (equivalent to the  $\text{CH-Y}$  in the instant application) can be  $\text{CH}_2$  or  $\text{CH-(C}_1\text{-C}_3\text{-alkyl)}$  (See page 2, paragraph 0018). The prior art reference also teaches specific compounds such as 5-bromo-1H-indole-2-carboxylic acid indan-2-ylamide (See ex 241, page 30), 7-nitro-1H-indole-2-carboxylic acid indan-2-ylamide (See ex 252, page 31), 5-methyl-1H-indole-2-carboxylic acid indan-2-ylamide (See ex 254, page 31), etc.



In Ex parte Bluestone, 135 USPQ 199, it was well established that the interchange of alkyl and hydrogen is obvious in and of itself. For example, it is obvious to prepare an alkyl substituted (i.e. methyl) indanyl amine derivative wherein the indanyl ring is substituted at carbon 1 when the art teaches an unsubstituted acylated indanylamine wherein the indanyl ring could be substituted at carbon 1 with a C<sub>1</sub>-C<sub>3</sub> alkyl with a reasonable expectation of success. Specifically, a methylsubstituted indanyl ring and an unsubstituted indanyl ring are considered homologues and are obvious absent unexpected results. Therefore, it would have been prima facie obvious to one having ordinary skill in the art at the time the invention was made to prepare adjacent homologs based on the teachings of the preferred embodiments in the prior art. A strong prima facie obviousness has been established.

### III. ***Objection***

#### *Dependent Claim Objections*

Dependent Claim 19 is objected to as being dependent upon a rejected based claim. To overcome this objection, Applicant should rewrite said claim in an independent form and include the limitations of the base claim and any intervening claim.

### IV. ***Conclusion***

**THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawquia Young whose telephone number is 571-272-9043. The examiner can normally be reached on 7:00 AM-3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on 571-272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Shawquia Young/

Examiner, Art Unit 1626

/Rebecca L Anderson/

Primary Examiner, Art Unit 1626